

Fig. 6. A flattened, a simple and a spatulate hair from thorax of *Morri-sonia (Mamestra) confusa*. The tip only is shown in this and the following figures 7, 9 and 10.

Fig. 7. The characteristic spatulate scale of *Xanthopastis timais*.

Fig. 8. Simple scales, from *Prothymia*.

Fig. 9. Flattened hair.

Fig. 10. Flattened and simple hair from *Xanthia*.

Fig. 11. Coarse and fine simple hair.

Fig. 12. Much elongated simple scale from *Eutelia*. Those of *Eriopus* are similar.

Figures 8 to 12 are all at approximately the same scale.



## LYCÆNIDÆ OF CALIFORNIA DESCRIBED BY BOISDUVAL.

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The account in the *Annales de la Société Entomologique de France* for 1852 where Boisduval tells of the collecting trials of his friend Lorquin makes very interesting reading. Lorquin must have been an assiduous and sharp-eyed collector, for it was a fine collection of California butterflies that he sent Boisduval as described in the first paper. Among the Lycænidæ there were twenty-five species, twenty-three of which were new, and a glance through the check lists will show a dozen more butterflies accredited to the same paper. Indeed, Boisduval's names form the backbone of a taxonomic study of the California material. Of the twenty-three species of Lycænidæ he first described in 1852, twenty-one stand unquestioned to-day as good species, one may or may not be considered a variety, and one only becomes a synonym. Boisduval's second paper on California Lepidoptera appeared in the *Annales de la Société Entomologique de Belgique* in 1869 and contained a list of the species previously described, additional species recorded as captured, and the descriptions of seventeen new Lycænidæ together with other Lepidoptera. Of these seventeen names, I consider five only as specifically good; ten are synonyms, and two are varieties of other species. This loss of specific rank for the Boisduval names came about by the activities of our own American collectors during the years between Boisduval's papers. Edwards,

Reakirt and Behr were actively describing material and they even contributed considerably to the synonymy by redescribing some of Boisduval's species of 1852. Felder also named two species in 1865 for which Boisduval gave us new names in 1869, making in regard to one a very curious confusion as he redescribed one of his own species of 1852 by which, of course, his second name and Felder's name are dropped into synonymy.

In regard to a considerable number of Boisduval's species, our present check lists are in a most chaotic condition. Some species have stood with a question mark after them, always *nomina nuda*; others have been put into the ignominious seclusion of synonymy, some justly, others unjustly, some ignorantly for the blues are frequently wrongly referred. There is one interesting case of transposition of names, and it is remarkable how this occurred. The only way to clear the confusion is to systematically trace each species out and learn its history, a tedious process of studying check lists.

The publication of the first part of Volume IX of *Études de Lépidoptérologie Comparée* by Charles Oberthür, in which are figured the Boisduval types of California Lycænidæ, corrects the mistakes of two generations and gives us an opportunity to see what Boisduval's names really mean.

16.<sup>1</sup> *Thecla sylvinus* has never before been recognized by American collectors but it is easily determined from the figure as a fairly common California insect which has until now been misnamed in collections. I have seen it under the label of *itys*, *dryope*, *californica* and even *tacita*.

17. *Thecla aurette* has been equally unknown unless we take Strecker's word for it that he knew the species, which is not at all unlikely. Both *tetra* Behr and *spadix* Henry Edwards sink as synonyms of this species.

18. *Thecla sarpium* as figured is interesting because of the pronounced median lines of white spots shown in the figure. This is not the usual form found, as judged by material found in eastern collections, because the white scales are obsolete to absent in most cases.

19. *Thecla grunus* is well known and is easily recognized.

20. *Thecla iroides* is a valid species closely allied to the eastern *augustus*. I do not consider it a synonym as Dr. Henry Skinner states in the *Entomological News*, vol. XXV, p. 47.

<sup>1</sup>The numbers and genera are those of the 1852 paper.

21. *Thecla eryphon* is also easily separable from eastern *niphon*. I think larval investigation of the four species just cited would give ample proof of their validity.

22. *Thecla dumetorum*, Dr. Skinner calls a synonym of the European *rubi* Linn., but I prefer to call it distinct, and Messrs. Haskin and Grinnell have pointed out the differences in a paper in the Entomological News, Vol. XXIII, p. 3.

23. *Polyommatus hypophleas* was described in the 1852 paper by Boisduval. Oberthür does not figure it.

24. *Polyommatus helloides*, .

25. *Polyommatus gorgon*, and,

26. *Polyommatus xanthoides* are all well known.

27. *Polyommatus arota* is not commonly found in collections but is, I feel sure, a good species distinct from *virginiensis* Edwards.

28. *Lycæna amyntula*, and,

29. *Lycæna exilis* are easily recognized.

30. *Lycæna antagonon* is the only synonym of the 1852 paper. It falls before *acmon* Doubleday and Hewitson, described in the same year.

• 31. *Lycæna xerces*, and,

32. *Lycæna scipiolus* are easily recognized.

33. *Lycæna icarioides* I do not think so well known. It is constantly confused with *Lycæna erymus* Boisduval which is placed as a synonym of it, in our check lists. The figure shows it to be at least a distinct variety.

34. *Lycæna pheres*.

35. *Lycæna heteronea*, and,

36. *Lycæna enoptes*, present no difficulties.

37. *Lycæna pius* furnishes the most interesting discovery of the paper. This name has been long attached to a western form of our widely spread and variable *Cyaniris ladon* Cramer (or *Lycæna pseudargiolus* Bdv. and Le Conte) and it is a most remarkable case of misidentification. W. H. Edwards seems to have been responsible for placing it under *pseudargiolus* and later writers have followed him. *Lycæna pius* is the butterfly that is now commonly recognized under the name of *sagittigera* Felder, and curiously Boisduval redescribed it as *rhæa* in 1869. It is a much named butterfly as W. H. Edwards named it twice, Reakirt, Behr and Felder once each, and Boisduval himself twice, his first name standing.

38. *Lycæna pseudargiolus* is mentioned by Boisduval as taken in California, and he must have got the western form which we have so long known as *piasus*; however he did not distinguish it and says in his 1869 paper that it does not differ from individuals taken in other parts of the United States. It would have been interesting if Oberthür had figured a specimen from the Boisduval material.

39. *Lycæna antiacis* is an extra large and aberrant specimen of the xerces and mertila group. I agree with the opinion of Mr. F. X. Williams<sup>1</sup> that there is probably one species with several varieties here.

This closes the 1852 paper and the following species were described in 1869.

14.<sup>2</sup> *Thecla spinctorum* is easily recognized and distinct.

15. *Thecla borus* is a synonym of *Thecla californica*, Edwards.

17. *Thecla nelsoni* is commonly recognized.

19. *Polygonmatus nivalis* may be now resurrected from synonymy where it was placed by Kirby in his catalogue of 1871 and since copied by American authors. Kirby placed it as a synonym of *mariposa* Reakirt, a case of misidentification. *Nivalis* has been known in our collections as *zeroc* BdvL., and *ianthe* Edwards was considered a synonym of it. *Ianthe* is really a synonym of *nivalis*.

20. *Polygonmatus zeroc* is really a synonym of *mariposa* Reakirt. Thus *nivalis* BdvL. reappears in our lists as a valid species and *zeroc* becomes a synonym.

22. *Lycæna regia* is a synonym of *sonorensis* Felder.

23. *Lycæna lupini* is a very interesting form of *Lycæna acman* Doubl. and Hew. W. H. Edwards erroneously made it a synonym of his *shasta* in his catalogue of 1884 and this mistake has been copied by later writers.

25. *Lycæna nivium* is a synonym of *shasta*, Edwards, 1862.

26. *Lycæna philemon* is a synonym of *anna*, Edwards 1861.

27. The male of *Lycæna rufescens* as figured might be called a variety of *sæpiolus* BdvL. 1852. The insect figured as female *rufescens* is really a female of *dædalus*, Behr. 1867. The relationship of these insects needs study as well as the synonymy. Incidentally *dædalus* Behr. is not a synonym of *icarioides* BdvL. as given in our

<sup>1</sup> Ento. News, Vol. XIX, p. 476 and Vol. XXI, p. 30.

<sup>2</sup> The numbers and genera are those of the 1869 paper.

present check lists, but is related to *sapiolus* BdvI, of which I think it may be a variety.

28. *Lycæna erymus* is given in the check lists incorrectly as a synonym of *icarioides* BdvI.

29. *Lycæna polyphemus* is a synonym of *mertila* Edwards 1866 as before mentioned.

30. *Lycæna evius* does not fit very happily as a variety of *pheres* BdvI, as now listed. Its relationship I have not tried to work out.

31. *Lycæna nestos* is a synonym of *podarce* Felder 1865.

32. *Lycæna phileros* is a good species.

33. *Lycæna rhæa* is the insect until now generally called *sagittigera* Felder. It is a synonym of *piasus* BdvI, 1852, as I remarked before.

34. *Lycæna suasa* is a synonym of *fuliginosa* Edwards 1861.

I have tried in working out the identity of the Boisduval material to confine myself to the statement of the facts. I have made my identifications from liberal series in most cases and have made my comparisons in daylight, having the assistance of Mr. F. E. Watson in checking comparisons. I am sure any one else with a liberal supply of material at command would reach like results. Mr. Oberthür has certainly rendered a very great service to American students and to those in charge of our public collections by figuring the types of Jean Alphonse Boisduval.

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## ANTS COLLECTED BY W. M. MANN IN THE STATE OF HIDALGO, MEXICO.<sup>1</sup>

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During the spring and summer of 1913, Mr. M. W. Mann, of the Bussey Institution, was able, through the kindness of Mr. B. Preston Clark, to make an extensive collection of insects in the state of Hidalgo, Mexico. Considerable attention was devoted to the ants and myrmecophiles, as no one seems to have collected these in Hidalgo, though this state is at no great distance from the Mexican capitol. At any rate, I fail to find a single ant cited from Hidalgo in

<sup>1</sup> Contributions from the Entomological Laboratory of the Bussey Institution, Harvard University, No. 74.